question of scientific opinion but had become also one of honour. And until the Council of the Royal Society take measures to refute or to atone for (!) the charges I then made, it is evident that courtesy and chivalrous conduct are at a discount in the scientific world, and it is not surprising that the deterioration of the tone of thought should be such as to have at length attracted the attention of the editor of the *Times*."

At p. 486 we have again the old question of the moon's non-rotation about its axis. This latest follower of Mr. Jellinger Symons gives a new and rather amusing argument in support of the heresy. For he says it would require us to suppose that a ship which sails round the world must have turned a complete somersault, while it is quite obvious that she has not done so!! Here we fear we must part company with our amusing instructor; and, though to many it may appear the blackest ingratitude, we must conclude with a hearty wish that Mr. Jordan's work had been published some twenty years sooner. Had it been then given to the world it would, like a fly in amber, have secured immortality in the pages of De Morgan's unique, because inimitable, *Budget of Paradoxes.*

It has many of the distinctive charms of the celebrated works of Mr. James Smith (of Liverpool), Mr. James Reddie, and Baron von Gumpach. All these great men, in their turn, tilted at Philosophers or Scientific Bodies, the Astronomer-Royal, the Royal Society, the British Association, &c., and complained, as Mr. Jordan now does, of the bigotry and malevolence in high places which depreciated the value of the gifts they were bestowing on the world. Some of them were hopelessly illogical and stupid, others merely ignorant. Mr. Jordan appears to belong to the second category. He is evidently untaught, though presumably not unteachable. But he should not attempt to teach. P. G. T.

THE BRITISH MUSEUM CATALOGUE OF BATRACHIA

Catalogue of the Batrachia gradientia s. caudata, and B. apoda in the Collection of the British Museum. Second Edition. By G. A. Boulenger. (London: By Order of the Trustees, 1882.)

THIS volume completes the second edition of the Catalogue of the Batrachians in the British Museum. The former volume, which appeared in the spring of last year, we have already noticed. The first edition (1850) was prepared by Dr. J. E. Gray, and contained descriptions of 72 species; 132 species are described in the present work, the great majority of which have been actually examined by Mr. Boulenger. The number of species of tailed Batrachians in the British Museum collection now amounts to 78 against 38 in 1850. Several of the species which are wanting in the collection are natives of America, and in the interests of science we hope some of the distinguished herpetologists of the New World will generously supply these desiderata. The number of footless Batrachians in the Collection is 19 against 5 in 1850, and in this group also nearly all the species unrepresented in the national collection are natives of America. In addition to very full synopses of the families and subfamilies, of detailed diagnoses of the genera and species with synonyms, we have appended to this volume a summary of the principal facts of the geographical distribution of Batrachians generally, which adds immensely to the value of this catalogue to the general biologist. Of the various primary geographical divisions which have been proposed, Mr. Boulenger finds that that recognised by Dr. Günther for freshwater fishes into Northern Equatorial and Southern Zones, agrees best with the facts deducible from the study of Batrachians, but with one modification, for a Southern Zone does not exist for Batrachians. Tasmania and Patagonia do not differ in any point regarding their frog-fauna from Australia and South America respectively. The following are the principal conclusions:—(1) In the Northern Zone there is an abundance of tailed and an absence of footless forms. A. In the Old World division (Europo-Asiatic or Palæarctic Region) there are numerous Salamandrinæ, with a single exception an absence of Hylidæ, but Discoglossidæ are present. B. In the North American division we find Sirenidæ, few Salamandrinæ, Plethodontinæ, Amblystomatinæ, and Hylidæ numerous, Desmognathinæ. (2) In the Equatorial Southern Zone there is an absence of tailed Batrachians and an equally characteristic presence of footless forms. Dividing (A) the Old World region into Indian and African, we find in both the frogs numerous (260 species out of 300), an absence of Hylidæ and Cystignathidæ, while in the former there are no Aglossæ or Dendrobatidæ, while in the latter there are Dactylethridæ or Dendrobatidæ. Dividing (B) the New World region into Tropical America and Australia, the former is rich in footless forms (21 species), has very many tailless forms, some small families quite peculiar to the region, but above all is it rich in the Arcifera, it has also a few tailed forms; the latter is divided into three subregions: the Australian proper is chiefly remarkable for a negative character, there are no footless or tailed forms, almost no toads or frogs, its fauna consisting mainly of the two families, Cystignathidæ and Hylidæ; the Austro-Malayan subregion presents an interesting blending of Indian and Australian forms, a curious fact is the occurrence, according to Peters, of a third species of the African genus Phrynomantis in Amboyna and Batavia, New Caledonia does not yield a single Batrachian; the third or New Zealand subregion possesses but a single species, *Liopelma hochstetteri*, very curiously a member of the family Discoglossidæ, which is otherwise restricted to the Europo-Asiatic region. The following new species are described for the first time, and there are excellent illustrations of most of them in the plates accompanying this volume: *Hynobius peropus*, China and Japan, *Spelerpes yucatanicus*, Yucatan, *Uræotyphlus africanus*, West Africa, *Hypogeophis guentheri*, Zanzibar, *Dermophis albiceps*, Ecuador, and *Chthonerpeton petersii*, the Upper Amazon.

The keeper of the Department of Zoology in the British Museum may be congratulated on the Batrachian collection having held pace with the progress made in this branch of science during the last thirty years.

OUR BOOK SHELF

The Cinchona Planter's Manual. By T. C. Owen. (Colombo: A. M. and J. Ferguson, 1881.)

Few plants have been so fortunate or unfortunate in having so much written about them as the *Cinchonas.* Ever since their successful introduction into India, now

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some twenty years since, the Cinchonas have had showered upon them books and pamphlets innumerable, and where we find such voluminous writings, it would be strange indeed were there not matter of varied quality, and some that could be dispensed with altogether. Mr. Owen's book is very complete in the several branches of Cinchona literature, facts gathered from various authentic sources, such as the works of Dr. King, Dr. Bidie, Mr. McIvor, and the reports of the Indian and Javan Governments, all of which are acknowledged by the author.

The book is divided into six parts, the first part being devoted to the physiology of plants, gathered, as we are told, from Church and Dyer's "How Crops Grow." The second part treats of the alkaloids, the species and varieties, to which a large space is given, and the next part on the choice of land, felling, clearing, weeding, planting, &c. In the fourth part manuring and harvesting are considered; and in parts 5 and 6 the diseases to which Cinchonas are liable, and the estimates of Cinchona planting are digested. In all these matters careful details are given.

The book no doubt will be very useful to Cinchona planters, more particularly the practical part. Its greatest fault, perhaps, is the extent of the book, numbering 203 pages, too voluminous for many planters to wade through; but on the other hand it appeals also to those who, though not actual planters, are interested in the progress of the Cinchona culture.

Kallos, a Treatise on the Scientific Culture of Personal Beauty and the Cure of Ugliness. By a Fellow of the Royal College of Surgeons. (London: Simpkin Marshall and Co., 1883.)

THE author desires his book to be taken seriously. He shows that good looks and manners have a commercial value, since those are more likely to succeed in obtaining the prizes of life who can make favourable first impressions than those who cannot. The first start greatly depends on patronage, and obscure youths who have won wealth and position have almost always been helped by their good looks, good address, and good voice. These are aids of considerable importance to every candidate, whether it be for a place behind a counter or for the suffrages of a constituency. The author considers from a medical point of view how ill-favoured individuals may palliate their defects. He treats ugliness as a disease, classifying its various forms and indicating such remedies as he can. His classes are coarseness, thinness, obesity, vulgarity, wrinkles, defects of circulation, of complexion, and of the hair. Then he takes the features in detail, eyes, nose, mouth, &c. His recipes are not numerous. We learn incidentally that what is sold as lime juice and glycerine for the hair contains no glycerine at all, and that a very popular dressing is castor oil and rum. This would have harmonised with the toilette of the Syrian beauty of old times, whose "garments smelt of myrrh, aloes, and cassia," a very apothecary-like fragrance. The book does not contain practical advice of much novelty, but its interest chiefly lies in directing attention to much that we already know but are too apt to forget; such as that dissipation, gross feeding, and indolent ways create ugliness of various forms. We know there are bad schools where the boys are slouching, ill complexioned, furtive in expression, and generally ugly, and we also know that there are good schools where, owing to healthy habits and keen and varied interests, the boys are bright, vivacious, and attractive. Similar differences due to different habits of life exist in men; they are pre-eminently shown by the good effect of drill on a plough-boy or street lounger. We may be sure that those who habitually cultivate a healthy mind in a healthy body, and who study how to please, cannot fail to add to the total happiness of the world and to secure for themselves a better chance of succeeding in it than their more negligent rivals.

The Nat Basket. (Printed for the Editress and Publisher, Mrs. Eleanor Mason, at the Albion Press, Rangoon, Burmah.)

WE hope that the subscribers to this extraordinary publication are content to give to it their money and nothing more. It is designed, we are told, to show the natives that there is no contradiction between Scripture and science, but if they believe that what is presented to them in the *Basket* is science they are much to be pitied. Such a medley of misstatements, absurd etymologies, and false astronomy was never before met with out of Bedlam. If this is the stuff that is taught the Burmese by our missionaries, the sooner the latter return home the better.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.*]

Deductive Biology

IN the few remarks which I communicated to this journal (vol. xxvii. p. 554) under the above heading, I protested against the deductive method used in a purely literary manner as a mischievous way of attacking biological problems. Mr. William White objects that if I am right the deductive method must be excluded altogether "as a false and dangerous element of philosophy." I do not myself see that this necessarily follows. The pith of what I said simply amounts to this—the biological sciences not having reached the deductive stage, it is not possible to enlarge our knowledge in them by mere ratiocination. This is I apprehend no more than is laid down by Mr. Mill himself. Writing of the conditions under which the deductive method is applicable, he expressly says that without one indispensable adjunct "all the results it can give have little other value than that of guesswork" ("System of Logic," 4th ed. vol. i. p. 498). The indispensable adjunct is verification, which requires the substitution of the work-table for the desk. When the former has put the stamp of confirmation on the speculations elaborated at the latter we get a scientific result which commands attention. Without this confirmation I am still of opinion that the deductive result is only "a literary performance." It is worth noting that the able writer whose papers and method I took the liberty of criticising so far admitted the validity of what I said, that he promised to have some experiments made which would go a considerable way towards demolishing or sustaining the results at which he had so far arrived only deductively.

As it would be a rather arduous undertaking to follow Mr. White over all the other ground covered by his letter, I will only refer to one point. He asks whether "comparative embryology" is not "founded entirely upon the method of deductive analogy." I am certainly myself under the impression that it would be difficult to pitch upon any area in science in which the knowledge we possess has been more conspicuously gained by persistent investigation or one in which generalisations have more often crumbled under the pressure of fresh results of observation. It is the section-cutter, and not the desk, which has won the victories in this field. At the present moment two of the most skilled of our younger embryologists (with funds furnished by the Royal Society) are on the point of starting, one for the Cape, to study the embryology of *Peripatus*, the other to make a similar attempt in Australia on the earliest phases of the life-history of *Ornithorynchus* and *Ceratodus*. They would hardly perhaps engage in so laborious a quest if it would answer equally well to stay at home with a ream of paper, and, say—without any disrespect to the eminent author—a copy of the writings of Mr. Herbert Spencer as "a base of fundamental truth" to start from in the analogical deduction of the embryology of these organisms. W. T. THISELTON DYER

YOUR correspondent, Mr. William White, has not, it seems to me, a correct appreciation of the words "deductive" and

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